plane
GRUMMAN
news

Space team readying Apollo 13 for third lunar landing mission

"The LM vehicles are getting better and better," commented Al Beauregard, LM-7 spacecraft director. He wasn't bragging: it's a fact.

LM-7 is the Lunar Module taking two men to the moon on the Apollo 13 mission next month. "To me it is very significant," said Beauregard last week, "that we were able to bypass four to five weeks of LM-7 testing in the Vehicle Assembly Building at the Cape. This was NASA's decision, and it obviously proves their confidence in the whole Apollo system. LM-7 was in the big VAB only three days, and that was for the purpose of stacking the modules on top of the Saturn V."

This condensation of effort does not mean that a thorough test program has not taken place, but that is has been done more efficiently as a result of long experience and improved test procedures. "Never fear; we're well aware that there's a tendency to be complacent because of the success of the previous Apollo missions. We know all about all the things that can go wrong," Beauregard said, "but we've got highly trained and dedicated crews, and we ARE confident."

Because of the static discharges that threatened the success of Apollo 12 almost before it got started, NASA has imposed stricter rules concerning weather conditions. And since there is only a three-hour "window" on the launch date, April 11, if something interferes with the launch during the three hours beginning at 2:13 p.m., Apollo 13 will have to wait until May 9, 10, or 11. The "window" has to do with a combination of sun angle, landing site, and earth/moon relationship.

The basic plan is for launch of Apollo 13 at 2:13 p.m. EST on Saturday, April 11, and for lunar landing at 9:55 p.m. EST on Wednesday, April 15.

The Apollo 13 crew will be commanded by Navy Capt. Jim Lovell Jr., who has had more hours in space than any of the astronauts; LM pilot Fred Haise Jr., a familiar figure at the Bethpage plants; and Navy Lt. Cdr. Tom Mattingly, Command Module pilot, who will stay in orbit around the moon while Lovell and Haise explore the rugged Fra Mauro area that lies about 110 miles east of the landing site of the previous mission.

Moon walk

Lovell is scheduled to take his first step on the moon at 2:23 a.m. on Thursday, April 16, Haise about 15 minutes later. They have more rugged area to explore, more complex duties to perform, and more experiments to deploy than the previous astronauts had. Each period of extra-vehicular activity will last 4 to 4½ hours, and they could run a little longer. One of the new duties will be to drill three 10-foot holes with a revolving, battery-operated pounding

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Practice for EVA. Weighed down with gear that will not be so heavy on the moon, Astronauts Jim Lovell (L), Apollo 13 commander, and Fred Haise, LM-7 pilot, rehearse their extra-vehicular activity at KSC. They're about to erect the electrical power generator for the Apollo Lunar Surface Experiments Package to transmit data back to earth. (NASA photo)

Keep posted

Job Opportunity Bulletins have been posted on bulletin boards and in all Employee Services offices in Grumman's Long Island plants since last September; now there's also a Supervisory Promotional Opportunity Bulletin.

Supervisory Opportunity Bulletins, like the Job Opportunity Bulletins, will list all requirements for the job that's open, and they will stay posted on bulletin boards for five work days.

You can get a jump on the crowd by filling out your Supervisory Review Request form (GAC-2777) before these openings appear—and should one be posted fitting your qualifications, you will be automatically reviewed for the job. This information is maintained in the Personnel Development Office, Plant 28, for one year. Forms are available at Employee Services, Personnel Development, or in your own department.

Is this the chance you've been waiting for? For additional information, call Charlie Fuschillo, manager of Personnel Development, Ext. 1515.

Riding on air

Grumman Aerospace has received a $3 million contract to design a 300 mph tracked air-cushion research vehicle (TACRV). The contract is for the engineering design of the TACRV and the guideway upon which it rides, together with requirements for program plans for later vehicle construction and testing.

Secretary of Transportation John A. Volpe announced the award at a meeting on March 17 of the National Press Club in Washington. "The Grumman contract," he said, "is a key element in the Department of Transportation's overall tracked air cushion vehicle program." He said it would provide the technology for "second generation inter-city ground transportation systems," and he predicted speeds up to 300 mph within six to 10 years.

"Grumman will bring to the challenges of ground transportation all the experience and ability they have applied to our program in outer space," he said.

In a telegram to Secretary Volpe, Senior Vice President Bill Zarkowsky termed the contract "an outstanding opportunity to demonstrate to the Department of Transportation Grumman's fine capability."

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Vol. 29, No. 6, Bethpage, N. Y., March 27, 1970

Twenty-five on March service list celebrate silver anniversaries

Lou Willing and Joe Kalas were working for a new company in Baldwin 40 years ago, and by the wildest stretch of the imagination they could not have envisioned the size, in 1970, of what then was Grumman Aircraft Engineering Corp. Willing, of Plant Management & Staff, Plant 2, and Kalas, of Plant Stores & Distribution, Plant 3, completed those first four decades with Grumman on March 10 and 12 respectively.

Anthony Varvaro of Prototype, Plant 1, is marking his 35th anniversary on March 29.

Six men are completing 30 years:

PLANT 2: William R. Ekenstierna, Plant Administration; Harold Eaton Jr., Manufacturing Engineering Administration; Cosmo (Gus) D'Errico, Employee Services.

PLANT 3: David N. Smith, Small Parts Fabrication.

PLANT 12: Alfred H. Moser, Measurements Technology.

PLANT 87: Toimi O. Okerblom, P/S Aircraft Site Management, Calif.

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These men are celebrating silver anniversaries:

PLANT 1: Francis J. Turek, Design.

PLANT 2: Fred Weber, Router & Shear; Frank W. Peckham, Methods Engineering - Aircraft; Edward J. Franchi, Tool Fabrication - Non Met. Forms; Edward Connor, Grind & Jig Bore; Frank Dini, Verification & Product Support.

PLANT 3: Christopher J. McKenna, Machine Shop; Raymond A. Abrams, Honeycomb; Italo Di Geronimo, Production Control - Parts Control/Major; Harry E. Bayles, Tool Fabrication - Jigs & Fixtures.

PLANT 4: George P. Tomko, Final Assembly.

PLANT 5: Robert D. Bunce, Production Control - Parts Control/Major; Irving E. Kreutel, Space Management & Staff; Carlo C. Bonavito, Facilities Maintenance; Charlie Hedges, Vehicle Production Engineering; Frank A. Vuozzo, director, Engineering Operation Administration.

PLANT 6: John Zwakhals, Prototype; Martin W. Larcombe, asst. foreman, Electronic Flight Development Operations; Charlie E. Lane, Government Material Control.

PLANT 29: Donald F. Brower, Upholstery.

PLANT 30: Charles T. Le Roux, General Purchasing; Armando Murana, P/S Site Supply.

PLANT 33: William Landman, Instrument Test.

PLANT 36: Louis F. Muclo, Sub-Assembly.

PLANT 55: Paul J. Fearon, Detail Fabrication, Savannah.

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Fifteen men are marking 20 years' service:

PLANT 1: Robert Warbington, Prototype; John A. Dombroski, Fuselage Fwd.

PLANT 2: Robert A. Whritenour, Small Parts Fabrication; Bernard Austein, Out of Production Spares; Robert T. Moorehead, Tool Fabrication Sub-Assem. - Tools; Richard D. Mase, Manufacturing Engineering Management.

PLANT 4: Robert E. Jones, Crash Crews; Charles T. Lee, Inspection - Mechanical.

PLANT 5: Kenneth D. Beckendorf, Business Development.

PLANT 11: Hiram S. Shlimbaum, Methods Engineering - Special Details.

PLANT 15: Arthur C. Frank, Instrument Project and Staff.

PLANT 27: George Ketcham, Fuselage Sub-Assembly.

PLANT 33: August Henriksen, Space Management & Staff.

PLANT 36: Myron Bartleski, Surfaces & Assembly; Neil J. Barraga, Final Assembly.

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Forty-nine men and four women earned 15-year pins:

PLANT 1: Paul Grgas, P/S Structural Mechanical Engineering Design; Edward C. Cohen, Structural Analysis.

PLANT 2: Charles A. Williams, Small Parts Fabrication; Robert E. Marlborough, Prod. Control - Parts Control/Major; James H. Klingelhoefer, Plant Stores & Distribution; Robert V. Clare, Tool Fabrication - Metal Form Tool; Mildred Hession, Manufacturing Engineering Manpower Planning & Control; Salvatore Bulla, Manufacturing Tech.-Assembly by Tooling; Arthur N. Higdon, Grant Wright, and Michael Dysko Jr., all Facilities Maintenance.

PLANT 3: Joseph J. Smith, Plant Stores & Distribution; Donald A. Stephan, Facilities Maintenance.

PLANT 4: Francis Pasquince, Facilities Maintenance.

PLANT 5: Thomas McDermott, Instrument Test; John E. Rinde, Electronic Flight Development Operations; Charles A. Ranaldo, Harold F. Murphy, Henry LaJoie, and John F. Dunne, Facilities Maintenance; Richard M. Woessner, Section Planning; Toby Delgiudice, Corporate Devt.

PLANT 6: Miles C. Jones, Prototype; Eugene A. Gerstner, Instrument Test; Rosemary McCullagh, Telephone Services; John Stanton, Receiving Inspection-General.

PLANT 7: William J. Lent, Flight Operations; Charles P. Coulter, Project-Aircraft.

PLANT 8: Edward C. Mayer, Flight Avionics.

PLANT 11: Walter E. Smith, Tool Fabrication - Plastic Tools; Albert S. Grandis, Manufacturing Tech - Formed Parts.

PLANT 12: George De Vulder and John C. Van De Griek, Facilities Maintenance; Jack J. Petralia, Material & Process.

PLANT 14: Emanuel Bellassai, Facilities Maintenance; William R. Herling, Mechanical Test.

PLANT 15: William N. Dunwoody, Methods Engineering - Electronic.

PLANT 19: Angelo Varisco, Structural Designers.

PLANT 20: Edmond J. Schlitz, Transportation.

PLANT 21: Salvatore J. Cioffi, B/P & Off-Site Warehouses.

PLANT 25: Murray Bernstein, Acoustics Vibration Environment; Albert B. Coue, QC Program Management - Space.

PLANT 27: Thomas J. Fahey, Production Control-Parts Control/Major.

PLANT 30: Fred R. Hahn, Requirements Planning; Charles F. Moline Jr., Product Support Records; Aage Rasmussen and Grace R. Whitehurst, Facilities Adm.; Elizabeth L. Moroney, Contract Revenue.

PLANT 33: Theodore Arendt, Facilities Maintenance.

PLANT 34: Rufus E. Daniels Jr., Product Support Administration.

PLANT 35: William J. Giesler, Sub Contractor Control.

PLANT 36: Albert G. Reph, Final Assembly.

PLANT 77: Fortunato F. Costantino, Manufacturing Operations & Staff.

F. J. Turek, Design — F. Weber, Router & Shear — F. W. Peckham, Meths. Engg., A/C — E. J. Franchi, Tool Fab.

E. Connor, Grind, Jig Bore — F. Dini, Verif. & P/S — C. J. McKenna, Mach. Shop — R. A. Abrams, Honeycomb

I. Di Geronimo, Pts. Control — H. E. Bayles, Jigs & Fixt. — G. P. Tomko, Final Assem. — R. D. Bunce, Pts. Control

I. E. Kreutel, Space — C. C. Bonavito, Facils. Mtce. — H. C. Hedges, Ve. Prod. Engg. — F. A. Vuozzo, Engg. Oper. Admin.

J. Zwakhals, Prototype — M. W. Larcombe, Elect. Flt. Dev. — D. F. Brower, Upholstery — C. T. Le Roux, Gen. Purch.

A. Murana, P/S Site Supply — W. Landman, Instr. Test — L. F. Muclo, Sub-Assem. — P. J. Fearon, Detail Feb.

Award Grumman $3 million for development of TACRV

(Continued from page 1)

Grumman and General Electric Company, after separate preliminary studies, submitted proposals for the engineering design of a TACRV. Gumman won. "If we do a good job, we'll also get the hardware contract and the test program, for an additional $6 to $9 million," Sam Parkinson, Business Development ground transportation manager, said last week.

Bob Benito, formerly Mohawk Program manager, has been appointed TACRV Program director. Greg Grubelich is Program manager. "Greg and his proposal team can be justifiably proud of their accomplishment in winning this award. Their enthusiasm for this concept as a future means of high speed ground transportation is contagious," Benito said.

A Government test facility is to be built at Pueblo, Colo., to permit high speed testing of the Grumman vehicle on a 20-mile oval track or guideway. Another track will be built to test a newly developed high speed electric linear induction motor (LIM). This form of motor is a prime candidate for operational vehicles, being relatively noiseless and pollution free.

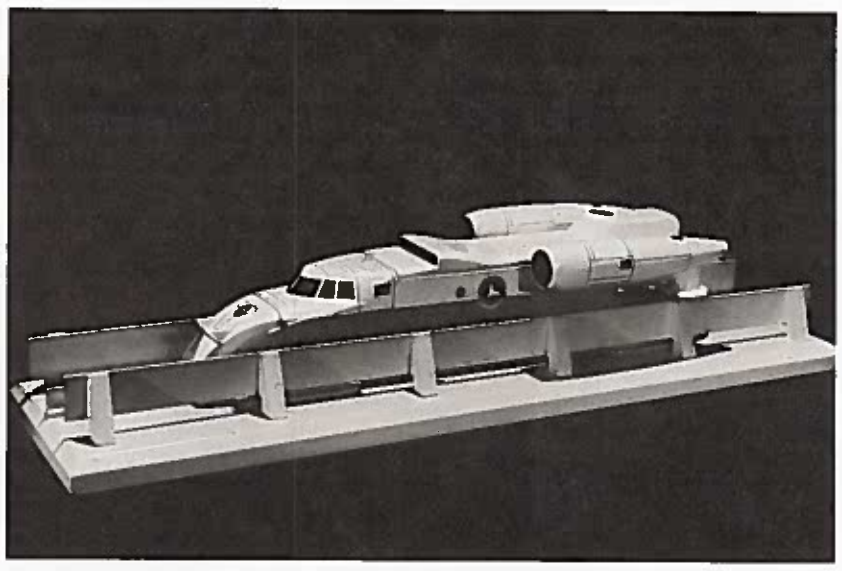
The Department of Transportation hopes to have the prototype built in 1971 and testing underway in Pueblo by 1972 or 1973.

The TACRV will skim along on a thin layer of air in a U-shaped channel or guideway that can be elevated, or that might even be located on the median strip of a broad highway. For economy the research test guideway will probably be at ground level.

TACRV when built will be 52 feet long, weigh up to 23 tons, and accommodate four persons for experimental operation. Electric power for the LIM will be supplied by a turbo generator; two turbo fans will power the lifting air cushions beneath the vehicle and the guidance cushions on each side.

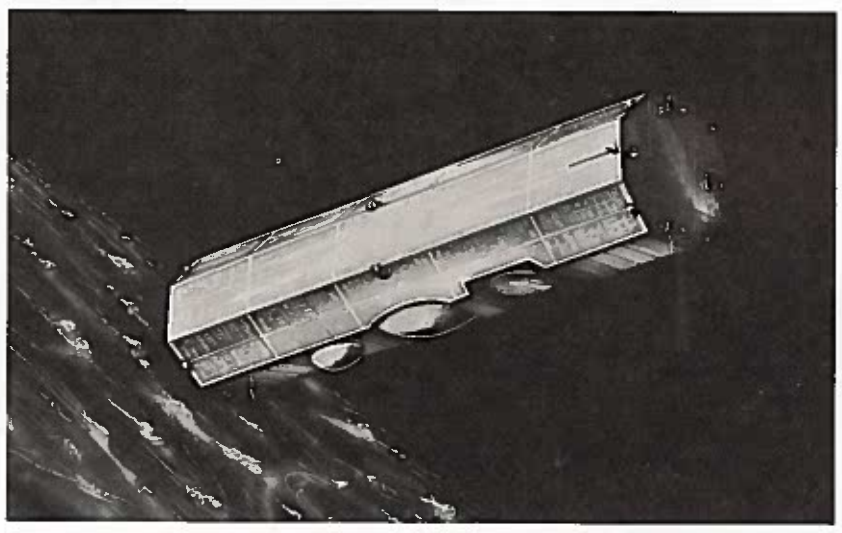
In addition to providing a smooth, comfortable ride at high speed, one potential advantage of the tracked air cushion vehicle concept is economy, Parkinson said. Because of the lower pressures exerted by an air cushion, as compared to wheels, a relatively simple guideway structure requiring minimum maintenance is possible. For this reason, significant saving over conventional railroad trackage is envisioned.

Secretary Volpe called the design contract with Grumman "a new chapter in man's saga of mobility."



Scale model of Grumman's winning TACRV design.

Near proposal deadline on satellite



"H-E-A-O" may well spell the name of another NASA-Grumman satellite for scientific observation of the skies—this one an observatory 30 feet long carrying instruments for studying the sources of cosmic, Gamma and X-rays out beyond the obscuring effects of earth's atmosphere.

HEAO stands for High Energy Astronomy Observatory. NASA's Marshall Space Flight Center has requested a proposal for a Phase B study, to be submitted by April 6. Grumman as prime contractor, in association with Bendix Corporation Navigation and Control Division and Hughes Aircraft Company, is in the competition and will submit a proposal to NASA on that date.

By June 1 NASA is expected to name two Phase B study winners, who will then develop the design, the cost studies, and manufacturing and operational techniques for a "no-frills" spacecraft using proven space technology. It is expected that there will be a follow-on contract for two HEAO spacecraft, the first launch projected for mid-1974.

HEAO is to be the equivalent of three stories, by 10 feet in diameter, with room for a number of experiment packages from scientists and research groups. The observations are expected to disclose a wealth of information in the high-energy range not available under earth-bound conditions.

HEAO Program Manager Frank Canning says that "Grumman's 10 years of experience with Apollo studies, the Lunar Module Program, the Orbiting Astronomical Observatory (still making regular observations of the stars in its 16th month of orbiting the earth), Space Shuttle studies, and Apollo Applications Program participation provides the knowledge and techniques necessary for the development of an economical, dependable vehicle." Grumman test equipment and clean room facilities are at hand. The team of space experts headed by Frank Canning includes John Purcell, assistant Program manager, and Bob Papsco, Engineering manager.

Bendix was chosen as an associate on the basis of the recent success of its ALSEP (Apollo Lunar Scientific Experiments Package) on Apollo 12 and its continuing efforts in experiment integration on the Apollo Applications Program (now referred to as "Skylab."). Bendix would be responsible for the HEAO attitude sensing and control, as well as the experiment integration. The Hughes contributions to the Program are in the communications and data management area, based on experience with the Surveyor, Syncom, OAO, and ATS satellite programs.

Canning says that "Grumman views the principal challenge of designing and building HEAO as being the application of current and well developed space technology to the spacecraft design and its associated program elements in order to achieve a reliable, low-cost spacecraft with high scientific yield."

HEAO proposal headquarters is in Plant 41, Melville.

Time to 'try harder'

In an Aviation Week listing of 100 leading NASA contractors, Grumman Aerospace ranked second for Fiscal Year 1969. North American Rockwell Corporation was the only company having a higher percentage of contract awards. Ranking of contractors in FY '69 remained almost the same as for Fiscal Year 1968, when North American claimed 22.53 percent of total net value of NASA awards, with $680,862,000, and Grumman 12.21 percent, with $369,168,000.

Big 'fly-in' for aero club

The GACE Flying Club, Inc. has taken delivery of seven Cessna aircraft, following a 14-month feasibility study by John Pereira and his Purchase Committee. Six of the planes were on display at Plant 4 for club members and friends on March 14.

GACE (for Grumman Aerospace Corporation Employees) Flying Club, comprised of 14 women and nearly 300 men, was formerly the Grumman Flying Club. Flight scheduling of the new Club aircraft will be administered by Allied Air Service at Deer Park, including two of the planes that will be based at Brookhaven Airport. About 200 GACE Club members are active pilots; others are still attending ground school courses. The Club has its own flight and ground school instructors.

For information about the Club and its activities, write to Carl Echols, S/CAT Management & Staff, Plant 25.

Grumman Allied—

'lean and hungry'

and looking for new markets

Looks to future. **President Wally Spielman heads corporate team working to develop talent and new products for Grumman Allied Industries Inc., a subsidiary of Grumman Corporation.**

Two years ago, following a couple of years of declining profits, the fortunes of Grumman Allied Industries Inc. took a dramatic turnaround shortly after Wallace B. Spielman took over the presidency.

Just how dramatic was that turnaround? In 1966, Grumman Allied stock (which sells Over-the-Counter) earned $.39 per share; in '67 it fell to $.07 per share; but the following year, 1968, earnings climbed to $1.07. Figures released earlier this month for the Grumman Corporation subsidiary showed $1.14 per share earnings, despite the general slowdown in the national economy. Grumman Allied sales for '69 topped the $22 million mark.

And business at Grumman Allied should remain healthy in 1970, Spielman feels, especially if the economic dip being experienced in this country levels off and business starts regaining some of the ground it lost over the past 18 months.

Spielman, a sturdy six-footer whose dark hair is heavily laced with gray, traced a good deal of the corporation's profit recovery to key management decisions at Pearson Yachts, a division of Grumman Allied located in Portsmouth, R.I. "The dramatic change of events occurred when the Pearson operation became a profitable one," said Spielman. "The difficulties Pearson Yachts experienced could be attributed to a number of factors. We were doing the volume in sales but not making a profit—in fact, we were losing money at the time. This loss caused a drain on corporate profits, and, in a sense, affected all our other divisions because we had to focus most of our attention on turning that situation around.

"Starting in 1968, we went out of the power boat business and concentrated all our energies on improving the designs and production of our fiberglass sailing auxiliaries. We did prove without any question that we could do a much lower volume of business and still turn a profit," he pointed out. "In 1968 we started to come in with plus figures for the first time, and we did the same this past year."

Now Spielman and Senior Vice President Robert F. Loar are moving ahead with new products and marketing plans that had to be delayed until the profit picture at Pearson Yachts took on a rosier hue.

One of their most promising prospects for future business—the Grumman Motor Home—was unveiled earlier this month at the New York Coliseum. Both men are quietly excited about this new venture, and should the Motor Home prove as popular as Spielman and Loar think it will be, Grumman Allied can be expected to make further inroads into the billion dollar recreation industry.

The new motor home will be completely self-contained, with sleeping accommodations for six, a head, galley, and cooking range among its many attractive features. Other key features of the Grumman Motor Home, Spielman feels, will be its construction—it will be primarily of aluminum and fiberglass—and its design, which was created from the combined talents and experience of environmental engineers, architects, and fabricators at Olson Bodies Inc. and Pearson Yachts.

New Motor Home. **Grumman Allied's entry into the motor-home field was unveiled recently at the New York Coliseum. Here, President Wally Spielman and Senior Vice President Bob Loar inspect the first Grumman Motor Home following its arrival at corporate headquarters in Garden City. (Photos by Nat Scherer)**

Spielman said that Pearson Yachts' extensive experience in fiberglass construction and yacht outfitting make it the logical place for the motor homes to be final assembled. Fabricators at the yacht facility at Portsmouth, R.I., will add a fiberglass roof and front and rear fiberglass panels to aluminum bodies produced at Athens, N. Y., and other specialists at Pearson will install living accommodations and interior decorations.

Taking shape also along the banks of Narragansett Bay near Portsmouth is a new type of vacation home. Grumman Allied's second new entry into the vacation home market will be offered in two versions, in either 24x38 or 24x50 foot modular sections, made of conventional building materials. Individual sections will be fabricated at the Portsmouth facility, then transported to the vacation site. Another attractive feature of this home, Spielman said, is that it can be stacked in sections, much like segments of an erector set, with outside steel members providing support for the entire structure. Other building possibilities for the modular-type structure are dormitories, commercial businesses, and schools.

In Grumman Allied's five divisions—Grumman Boats, Pearson Yachts, Olson Bodies Inc., J.B.E. Olson Corporation, and Wormuth Brothers Foundry—production continues on a number of other items in facilities at Portsmouth, Athens and Marathon, N. Y., Carmichaels, Pa., Sturgis, Mich., and Sherman, Tex. Later this year, Olson Bodies will open a new plant at Tulare, Calif.

Corporate teamwork

Those new marketing ventures, plus the press of normal day-to-day activities, keep the two men, as Loar puts it, "practically going steady" at the firm's corporate headquarters in Garden City, Long Island. On first appearances, there was never a more unlikely pair. Spielman, who likes to stay trim by playing golf, attended college during the depression to study automotive engineering.

He's been primarily involved in marketing since that time and has a long list of accomplishments to prove his success at it. He's still President of J.B.E. Olson Corporation, the division of Grumman Allied that's responsible for marketing and sales for Olson Bodies. By maintaining a close liaison with automotive firms that produce chassis for Grumman truck bodies, he keeps abreast of any technological and design changes that could have an effect on truck body sales, and, on occasion, he personally handles sales to

some long-time customers of Grumman Allied.

Bob Loar's shock of white hair and slightly cherubic appearance sometimes belie his hard-nosed approach to business. Loar feels that "you have to think lean and hungry to be successful" and sometimes laughingly offers to "rassle any man in the crowd for $5" just to prove the point. He left Wall Street in 1942 to come to Grumman as an internal auditor, and in successive stages, headed inventory control, the production stockrooms and warehouses, and, in 1962, while supervisor of materials, shifted to Grumman Aerobilt Bodies (later Olson Bodies) in Athens, N. Y., as general manager.

When Grumman Allied Industries Inc. was formed in late '62, Clint Towl, as Chairman of the Board (a position he's still active in), set the tone for the new subsidiary by broadening its scope to include the design, fabrication, and marketing of commercial non-aeronautical products. Loar continued to manage Aerobilt Bodies for the new subsidiary, but he was also named Vice President and a Director of Grumman Allied. He returned to corporate headquarters in Garden City in 1964, and in 1965 was elected a Senior Vice President of the firm.

Since May of 1967, when Wally Spielman was elected President of Grumman Allied, the two men have spent a great deal of time together building, at all levels, the kind of team they feel is necessary to assure continued success.

This tradeoff has been beneficial to both, Spielman feels. "I'd never been exposed to the manufacturing aspects of the business," he admits, "although I did act as the perennial gadfly in trying to get more production and better quality at lower cost. But in the past two years I've been learning a great deal about the manufacturing phase of the business.

Sounder decisions

"And while Bob basically handles most of the inside operations, he is participating in all of the marketing decisions, too. Knowing both aspects of the total operation can help you make sounder management decisions. When you know the answers to the problems related to the production of a product you do have a better knowledge of what you can do and can't do for a customer. If you can find better answers for him, and can satisfy his needs, you have a much better chance to continue to benefit from his business."

As Loar sees it: "What we're trying to do, by comparing notes, is to be sure our best judgment is exercised. There isn't a major decision that we make around here that we don't share our views and come up with our collective judgment. Sometimes we don't always see eye to eye, but before we're finished with the problem we do."

Spielman feels that "it's the way you address yourself to the problem that determines how well you'll come out. The more you probe, the more facts you should have; the more facts you have, the better assessments you can make, and, hopefully, the better your batting average is going to be."

Teamwork at all levels of the corporation and the development of managerial talent are things "both of us feel very strongly about," says Spielman. "We as a company are going to be as strong as our people in Grumman Allied. We're trying to create an atmosphere where the honest-to-goodness capabilities of every one of our people are given the greatest chance to flourish.

"We want our people to be decision-makers," added Spielman. "We believe fundamentally in decentralized control. We set up the ground rules—and we certainly keep checking what's going on at our various plants—but when a man has a plant, it's his responsibility, his baby. We visit our plants regularly, and we hold semi-annual meetings for our division and plant managers just to keep everybody well informed about what's going on in the company."

Loar points to the plants at Sturgis, Mich., and Sherman, Tex., to show that they do believe in developing their own managerial talent. "The general manager at Sturgis, who also is a vice president of Olson Bodies," he said, "was once an assembler. And when we open the new plant at Tulare, Calif., later this year, we're going to shift another of our vice presidents who's now general manager at Sherman to the new truck body plant on the Coast. Who's going to take over at Sherman? A young fellow about 29 years old; when he started at the Sturgis plant, seven years ago, he didn't know anything about truck bodies."

Going up. Senior Vice President Bob Loar and Bob Farren, director of Facilities Engineering for Grumman Allied, inspect plans for new Olson Bodies plant being constructed at Tulare, Calif. The facility is scheduled to be completed in June.

Availability of home-grown talent is only one of the factors that are considered before Grumman Allied moves into new manufacturing areas. "We try to engage only in areas where our specific talents can be used to their greatest extent," Loar points out. "We have tried to concentrate in markets where quality is a factor, where our own particular expertise can be developed, and where we can get maximum return for our efforts.

"Our truck bodies, for example, are acknowledged as being the finest in the industry. Originally we produced them in Plant 1 starting in 1946, and transferred them to Athens in 1948 while we were producing about 2,200 units a year. Today, Olson truck bodies are produced in three plants, and yearly production exceeds 6,000 units, which makes Olson Bodies Inc. the largest single manufacturer of aluminum forward control trucks in the country.

"Grumman Boats has built an aluminum canoe for over 25 years, and it's the best aluminum canoe on the market. The years have proved that. We used to produce 6,000 of them a year," he said, "now we're producing 18,000 at our Marathon and Carmichaels plants. It sells for a little more than other canoes, but it's the Cadillac of the trade.

Proven capability

"And we think the same holds true for the Pearson yacht—it's the finest fiberglass sailing auxiliary there is. We have a proven capability with aluminum and fiberglass—and if we go into a new market, or think about acquiring a new company, consideration is certainly given as to how it will fit into our particular type of environment," Loar continued. "We think that aluminum and fiberglass give us wide latitude in the kind of products that we have capability to do something with—and do it in a quality kind of way."

"We're interested in what our market is and where it is," Spielman added. "We have truck body plants in Athens, N. Y., Sturgis, Mich., and Sherman, Tex. Soon we'll have one in Tulare, Calif. By spreading our manufacturing plants out like that it gives us accessibility to the national market and enables us to cut our shipping charges on the finished product. As Bob said before, you've got to 'think' lean and hungry all the time if you hope to be successful."

Grumman Allied makes a diversity of products: iron castings for lamp bases and water control valves (Wormuth Brothers Foundry); a variety of aluminum truck bodies (Olson Bodies Inc.); aluminum canoes and sailers (Grumman Boats); and fiberglass sailing auxiliaries (Pearson Yachts). What other possibilities might there be in the future?

Currently under development at Grumman Allied, in addition to the new motor home and the new vacation home, are an aluminum-fiberglass minibus and a fiberglass houseboat. Spielman also looks for growth in the truck leasing business. "We started our own leasing firm as a competitive selling tool—and we feel that this market still has untapped potential."

As the bulk of the transportation industry becomes more and more dependent on wheels, and as leisure-time activities seem to be on the increase, Grumman Allied, with a variety of products designed for both markets, appears ready to benefit from any further expansion in these fields. But as Wally Spielman points out, "How strong the market will be, of course, depends on how soon the money pinch will ease."

Right now, Wally Spielman, the President of Grumman Allied, and Bob Loar, his Senior Vice President, are running hard to develop teamwork, managerial talent, and potential markets. When the national economy begins climbing again, they plan to be ready for it.

Taking shape. Vacation home being erected near Pearson Yachts facility at Portsmouth, R.I., is made of conventional building materials but will be fabricated in sections to permit stacking as shown in this artist's rendering. Other possibilities for this type of modular structure are dormitories, commercial businesses, and schools.

Golf guides

Practice can make perfect

This series of golf hints is being offered by Mike Cherry of the GAA, who is a member of the Professional Golfers Association (PGA). Illustrations are by Craig Kavafes of Presentations Services.

A good grip, proper stance and address, and good foot action are key elements in a good golf game—but before you can put them all together into a smooth, rhythmic swing, you must practice. Allot yourself a definite time for practice, and when you do practice, go out on the tee with the purpose of developing good habits and timing.

The routine seldom varies: start out with the nine iron, hitting the ball about 25 yards with a half-swing before increasing it to a full swing. Then go through your eight, seven, six, and five irons. If you are hitting them well, move along to the four, three, and two irons.

In practicing with the woods, start with the three wood. Give yourself a good lie. Tee it up if you like; remember, it's practice. Use the driver last, and then only if you are satisfied with the results you've been getting from the other clubs.

Try to develop power of concentration. Never just walk up and hit the ball; too many shots are wasted that way. Decide in advance how you want to hit the ball, and where you want it to go. Try to shut out any disturbing influences around you; if something does break your concentration while you are lining up a shot, step back and start over again. And after working out on the tee, you should spend equal time practicing chipping and putting, because they are really the stroke savers.

The better golfer who starts playing a round without limbering up takes about five or six holes before he is warmed up and playing well. Muscle freedom and rhythm are probably more important in golf than in any other sport but very few golfers take the time and effort to get loosened up before playing. Contrast that attitude with the tournament player who makes sure he always hits some golf balls and practices chipping and putting before starting a round.

So keep practicing—it pays off in lower scores.

Steffens to direct Garden Forum exhibits

John Steffens, veteran flower show exhibitor, has been elected to succeed Dorothy Kappenberg as director of the Grumman Garden Forum. Steffens works in Methods Engineering - Aircraft, Plant 1, and he can be reached on Ext. 84661 or 84720.

Plans for the year's show activities, coordinated by Chet Baumgartner of GAA, include the following:

Shows to be held in Plant 2 Cafeteria.

Show dates: Tulip, May 7; Rose, June 11; (no Glad Show); Dahlia, September 10; Chrysanthemum, October 22.

A novice class has been added for exhibitors who have never won a first prize. Newcomers especially urged to compete.

Thanks, fellas

The talents of two creative men—photographer Fred Annette and artman Bud Parke, both of Presentations Services—dress up the Savings Bond Drive Supplement that's enclosed in this issue of Plane News.

Readying Apollo 13 for launch

(Continued from page 1)

drill device. Lovell and Haise will be getting core samples and will be placing heat flow probes at varying depths to measure lunar temperature changes at those levels.

To make identification of the astronauts more positive than was the case with astronauts Pete Conrad and Al Bean on the Apollo 12 mission, Lovell's space suit will have a red band around an arm and leg.

The timetable for Apollo 13 goes like this, providing launch is at the scheduled time of 2:13 p.m. on Saturday, April 11: transposition and docking, 5:28 on Saturday: translunar coast continuing Sunday and Monday; lunar landing of LM-7 at 9:55 p.m. Wednesday, April 15; first EVA (extra-vehicular activity) 2:23 a.m., and second EVA, 10:08 p.m. Thursday. Liftoff from the moon should then occur at 7:24 Friday morning, and docking with the Command Module at 10:58 Friday morning.

Splashdown is scheduled for 4:13 p.m. south of Hawaii and 210 nautical miles from Christmas Island on Tuesday, April 21. Times are Eastern Standard.

Asked about the possible dangers of landing in so rugged an area as Fra Mauro, Beauregard said that there are relatively smooth places, safe for the Lunar Module landing. "The landing gear is designed for an incline of as much as 12 degrees to minimize touchdown stability. A safe takeoff can be effected at a much greater angle, supposing the vehicle slipped or tilted after landing—up to an angle of 40 degrees."

NASA honor

For distinguished contributions to the LM-7 Program, four Grumman men from the Bethpage area, with their wives, will be flown to Cape Kennedy to view the launch of Apollo 13 and to experience the usual red carpet treatment that Grumman and NASA accord their Manned Flight Awareness honorees.

The four are Murray Bernstein of Acoustics Vibration Environment, Plant 25; Robert Dolce of P/S Business Controls, Plant 35; John Munyak, Quality Control Laboratory, Plant 10; and Sal Sangemino, Final Assembly, Plant 3.

Roll out. GACE Flying Club members guide Cessna 150 trainer to parking spot on Plant 4 taxi strip. The Flying Club, which bought seven planes recently and has ground and flight schools, hopes more Grummanites and members of their families will join the organization.

OBITUARIES

Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.

JULES BRAUNSTEIN of Structural Test, Plant 36, died March 9 at the age of 48. He had been with the Company five years. His home was at 145 Orchard St., Plainview.

FRANCE R. SWANSON died March 9 at the age of 47. He had worked in Manufacturing Inspection and lived at 885 Hempstead Blvd., Uniondale. He had completed four years with Grumman.

DENNIS P. McBRIDE died March 17 at the age of 23. He had been with Grumman two years and had worked in Aerodynamics, Plant 34. His home was at 1503 Argyle Rd., Wantagh.

plane GRUMMAN news

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GAA drafting softball plans

Softball is in the offing, and the GAA has announced a series of organizational meetings starting early in April for the lunch period, after-hour, and Nite Owl leagues. One representative from each team is to attend the sessions.

Bethpage league meetings will be held in the GAA office, Plant 28B.

The lunch period meeting schedule:

Plant 1: Wednesday, April 8, 11:50 a.m.

Plant 2: Tuesday, April 7. First lunch, 11:50 a.m. Second lunch, 12:40 p.m.

Plant 3: Friday, April 10. First lunch, 11:50 a.m. Second lunch, 12:30 p.m.

Plant 5: Wednesday, April 8, 12:30 p.m.

The meeting for the Plant 6 and 7 leagues at Calverton is listed for Thursday, April 9, at 11:50 a.m. in the Plant 6 Library, while at Plant 27 in Wyandanch the session has been called for Monday, April 6, at 12:45 in the Cafeteria.

Meetings for the Bethpage after-hour circuits will all be held at 5 p.m. in the GAA Office, with the Monday night loop convening April 6; Tuesday, April 7; Wednesday, April 8; and Thursday, April 9.

The Plant 2 Nite Owls meet Thursday, April 9, at 10 p.m. in the Plant 2 Library, while the Plant 3 Nite Owls convene on Thursday, April 9, at 9 p.m. in the Plant 3 Cafeteria.

Chester Baumgartner will supervise these meetings for the GAA. He may be called on Ext. 2269 or 2133.

Ketcham hooks, shoots his way to eight top Rod & Gun awards

George Ketcham of Plant 27, Wyandanch, is something of a modern day Dan'l Boone. "All I've done is hunt and fish—since I was four years old," he remarked. His skill and wide range were reflected in the rollcall of awards winners recently in the annual contests sponsored by the Grumman Rod & Gun Club.

Ketcham caried off no less than 10 awards, taking eight first-place plaques and two seconds, scoring in both fresh- and salt-water fishing categories, and capping his victories with the largest doe (158 pounds) shot in the Catskills. He swept the trout prizes for brown, brook and rainbow—all caught in Rattlesnake Creek, Oakdale. He boated the top sea bass at Montauk, won firsts for both winter and summer flounder in Gardiner's Bay, and hauled in the biggest bluefish of 14 pounds from the surf at Montauk.

Donald Osterbury of Plant 3 Maintenance won the "Largest of Specie" award for an 83-pound blue shark, while a double winner was Anthony Milauckas of Plant 34, who boated a 48-pound, 8-ounce striped bass, and a 2-pound, 10-ounce weakfish.

Dolphins call girls softball tryouts

Those dandy Dolphins, the Grumman girls' varsity softball team, will be back in action again this season, hopeful of displaying the same form that carried them to victory in the Providence, R.I., Invitation tourney and to a division title in the Industrial League.

The call has gone out for all candidates to report for tryouts on April 5, 12, and 19. The Sunday drills will start at 11 a.m. The Dolphins' managers are Carol Ille (Ext. 2832) and Pat Reilly (Ext. 1952).

Grumman right on target once again

Grumman is headed for a sweep of rifle and pistol honors in the L.I. Industrial circuit.

The rifle team is 7-0 after a recent win over Republic, 766-715. The long barrel boys also outshot S&W in the South Shore circuit, 961-939, with Hank Womble pacing both victories.

In the pistol loop, the Gulfstreams lead the field in the Sharpshooter division, while the Trackers pace the Experts. The Trackers defeated Pan Am in their last outing, with Al Berka and Joe Oliveri again the big guns, although the big lift was provided by Eddie Bennett with a 260. The Gulfstreams won an "in house" duel, outscoring the Grumman Intruders, 1046-993, with Paul Pantason and Bob Bergman leading the way.

Bridge Club shows pat Industrial hand

Grumman's Duplicate Bridge Club is flush with victory this year.

The combination of Steve Dick, Al Levy, Hugh Montague, and Mel Levine made a good deal out of play in the L.I. Industrial League, placing first in the regular schedule and then defeating Sperry in the showdown for the playoff title.

Two other Grumman combinations placed high in the bidding, with Jerry Fogel, Roman Polanski, Erick Stern, and Marty Finkelman finishing third, and fourth-place honors going to Murray Duff, Abe Samuels, Joe Rizzuto, Norf Florio and Pete Shyprekevich.

Palomba, Fortune win honors in Bethpage table doubles play

Ralph Palomba and Mark Fortune struck it rich in the Class A table tennis doubles this year, loding up the title in the Bethpage tournament.

This Plant 14 pair swept through the double elimination event undefeated, and twice defeated Hy Dreksler and Sal Barcia of Plant 14 in showdown matches.

Palomba and Fortune won the winners' bracket by topping Dreksler and Barcia, 13-21, 22-20, 21-13. Dreksler and Barcia bounced back in the losers' bracket, topping Chris Rizzuto and Bob McCreery, but in the showdown duel lost to Palomba and Fortune, 21-19, 21-19, 21-15.

Rizzuto and McCreery made a stir in the opening round of the event by topping last year's winners, John Squicciarino and Ray Reppberger, 21-17, 21-17, after losing the opening game, 16-21.

Al Cook and Bud Nalbone won the B division crown, defeating Clinton Watson and Sal Gitto in the playoff, 21-13, 22-21, 21-17.

At Plant 27, Wyandanch, Lenny Trifano and Ed Boyle won the doubles, with a 21-19, 21-12 decision over Harold Corley and Joe Ewald, while Pat Courtney and Lionel Wellington donned the crown at Plant 33, Syosset, by defeating George Wilson, and Gottfried Kneips in the final, 17-21, 21-15 and 21-15.

Outlook bleak for pin varsity

Grumman's chances of winning the L.I. Industrial Men's bowling crown are clouded by a 200-pin deficit as play reaches the final round of the 12-game event tomorrow night (Saturday, March 28) at the Mid Isle Lanes, Hempstead.

Grumman cut sharply into Kollsman's lead in the first two games of the third round, rolling 1008 and 986, but then tumbled to 800 in the closeout and now ranks fifth in the championship standings. The Grumman squad rolled 2794 last week and 2731 in the second round, when Jack Nielsen shot 601 and Ben Plawski 590.

Nielsen started last week's session with 246 and appeared headed for the skies with a 258 in the second game. But he came back to earth with a 145 in the finale as he totaled 649. He did, however, have high game and series for the session.

Top individual marks after three rounds of the tourney are Howard Gould's 259 for Airborne, and a 682 series by John Koehler of Newsday.

Team and individual awards will be presented tomorrow night, including the Swirbul Trophy to the championship team. Play starts at 8 p.m.

The team standings:

Kollsman	8529	Sperry	7967
REF	8467	AMF	7941
Newsday	8375	Arma	7921
LILCO	8352	Fairchild Camera	7898
Grumman	8329	Reeves	7852
Republic	8203	Doubleday	7842
Airborne	8021	L. I. Water	7696
Pan American	7973	Stratos	7521

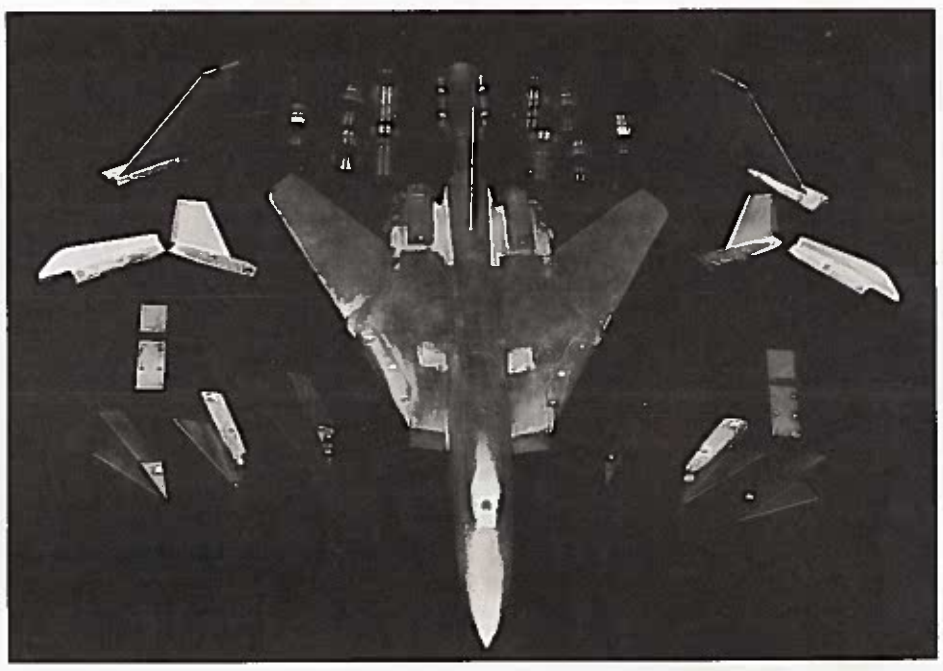
Pin laurels to Betterino

John Betterino, one of Grumman's busiest keglers, once again showed he's one of the best as he shattered his own record by three sticks with a 682 series in the Syosset Mixed loop. Betterino, who added to his 197 average, led the First Editions to a new team standard of 2338. John Queally and Larry Froehlich shot 247s the same night. . . . The Black league watched some sharpshooting when Art Grey slapped the sticks for a 269, shattering Fred Wagenhauser's record by 11 pins. Veteran Vic Matuza rapped 236 and 234 in a 652 series, while Tony Napolitano rolled 246. . . . Plenty of fireworks in the Red loop, with John Glozek first, shooting 247-659, Joe Glasser following with 267-643, and Fred Skirde then exploding a 670 series riveted to a 267 game. . . . Arleen Schwemmer provided one highlight in the Hawkeye Mixed, bowling a 220 game, while Tom Cava was posting a 246 and Vin DeVito shooting 241. . . . Roy Moser was the Outpost star with 244.

Alston swings 889

Joe Wilson claimed the second highest series of the season in the Masters when he rolled 879 for the four games, featuring 242 and 255. But that was good for only one week as Johnny Alston crashed an 889, totalling 699 for the first three on games of 236, 236, and 227. Mike Greggo had a handsome 854 and Grover Hart shot 240. . . . Angelo Caporaso reached his career high with a 259 in Hellcat kegling, which carried him to a 651 tally. Johnny Alston led the parade the previous week with 244-648. . . . Bob Ruotolo, the "300 Kid" in the Classified circuit, made some big noise again with a 256 game, while series honors went to Bob Hornfleck for a 626. . . . Sam Avati has been bowling for only two seasons, but he moved among the big boys recently with a 247 in the Lunar loop, as Bill Rooney rolled 622. . . . Frank Quinci now owns the series record in F-111 play after putting together a 630 string, boosted by a 247 game. . . . George Reuther was the big gun in an earlier round with 239, and George Fowler rolled 626. Hank Lada's 237 and 224 led Classified play.

Wind tunnel tests give design engineers long-range preview of future aircraft



Wind tunnel model made of aluminum and steel shows some of the components necessary for preliminary testing. Parts in this photo of F-14 model illustrate early design when question of single or double tail was not yet settled.

"We've run more wind tunnel tests for the F-14 than for any other aircraft program we've ever handled, and the tests are still going on," says Fred Shepheard, Aero Test project representative.

That's indicative of the thoroughness of Grumman's approach to developing the Navy's air superiority fighter, the F-14. Tests, tests, and more tests.

It all began in 1966 with a series of Navy Research and Development studies of advanced inlet and nozzle designs, followed by a line of product improvement tests of the proposed Navy version of the F-111. These turned out to be quite helpful—together with Grumman's experience with variable sweep aircraft that goes back to the early '50s. When contract-definition time for the F-14 came around, about 900 variations in aero-dynamic configuration and more than 525 inlet and ejector configurations had been tested. There's nothing better than doing your "homework" early!

Some 30 F-14 models and a host of components have gone out for tests at wind tunnels all across the country: to Cornell, to NASA at Ames and Langley, to Convair, to Princeton, to United Aircraft Research Lab, to Grumman's high-speed tunnels in Farmingdale, and the low-speed tunnel in Bethpage, and many others. "In fact," says Shepheard, "we went to just about every possible useful wind tunnel facility in the U.S."

The aircraft models tested are a bit different from what you might expect; certainly unlike any you'd find in a hobby shop or variety store. Some of them carry a price tag close to a **quarter of a million dollars!** Why so much? To measure very precisely in small scale the forces brought to bear on an actual aircraft. To build that type of model takes five or six months working two shifts, six to eight men per shift.

So, this business of testing aircraft models is expensive and, in addition, time consuming. Some 400,000 manhours have been expended just since February of last year, in support of some 10,000 hours of test time. In all, including our "homework," 27,000 hours of tunnel tests will be rung up, of which approximately 2,000 hours lie ahead.

Why does it require so many thousands of hours of wind tunnel tests since we've proved we know how to build aircraft? There's a simple answer: There's no single "plane for all reasons." Also, as more sophisticated aircraft are demanded, they are new and these must be tested and validated. The shortest and most economical preliminary validation route is by wind tunnel testing.

Screens out 'glitches'

"If you get right down to it, I suppose," comments Shepheard, "wind tunnel testing gives you a very good idea about key features of a new plane and thereby screens out gross (and often fine) 'glitches' in design and expected performance. There's a high correlation of flight characteristics between a tunnel model series and the actual aircraft."

With that in mind, what are the things to look for when a model is being tested? One is to develop and refine a configuration in areas not strictly amenable to theoretical design. "There are areas," says Shepheard, "where theory hasn't been fully worked out—areas mostly in the transonic (Mach 1) range, which used to be called the 'sonic barrier'.

Then, too, the testers measure the aerodynamic loads on different sections of the aircraft as they vary flight regimes, such as cruise, high-speed flight, or landing. Then there are "flutter" tests to determine stiffness and weight distribution requirements on control surfaces and wings and tail; and when you run into flutter, which in its mildest form is roughly comparable to driving a car with a loose front end that shimmies and shakes when driven too fast, the data are recorded and evaluated to see if any redesign work is needed.

When an aircraft is in flight, of course, the engine needs differing amounts of air, so the electronically controlled inlet system is simulated in tunnel tests; actual exhaust conditions are also simulated in the wind tunnel. Tunnel tests of externally carried stores loads of all types are also carried out; and—in a vertical spin tunnel, such as NASA's—the spinning test model has remotely actuated controls so as to test recovery techniques.

The scaled wind tunnel models, and the model sections, then, form an accurate and early preview of how an aircraft such as the F-14 will perform; and since most wind tunnel testing is done before any large hardware parts are in production, tooling for the prototype can start soon after the contract award. In the case of the F-14, early testing was necessary because of the tight design-to-production schedule.

"We certainly cannot guarantee that F-14 will perform in all respects exactly as wind tunnel tests indicate, but we'll come very, very close," Shepheard says. "Because of the thoroughness of our wind tunnel testing in the performance, propulsion, flight loads, and flutter areas we expect very few surprises when the F-14 takes to the air."

CALENDAR of events

Notice of events for period April 10 - April 24 should reach Plane News by Tuesday, March 31.

Am. Radio Club: Wed., April 15, 5 p.m., Plant 5 Cafeteria. Field Day plans. E. Goodman, Ext. 87121.

Aquatic Assoc.: Every Tuesday, 7:30-9 p.m., Larkfield Suburban Club. Swimming. Prospective members welcome. John Reeves, Ext. 2002.

Chess Club: Tuesdays, 5 p.m., Plant 3 Cafeteria. Tournament, games. C. Wilkie, Ext. 9941.

Coin Club (Bethpage): Wednesdays, 12:05-12:50, Plant 25 Vendor Conf. Rms. Irv Atkins, Ext. 1874.

Coin Club (Calverton): Thursdays, 12 noon, Plant 6 Conf. Rm. Trade, sell. A. Limoggio, Ext. 596.

Duplicate Bridge Club: Thursdays, 5:45 p.m., Plant 3 Cafeteria. Reserv. not req. Partnerships arranged. Bernard Holland, Ext. 9083.

Ex-Service Men's Club: First Monday of month, 6:30 p.m., Plant 28 Audit. Exec. & gen. meeting. Northeast. Cadet Corps every Fri., 7:30 p.m., Co. A, Cherry Lane School, Carle Pl., boys from 10 yrs. H. Dong, Ext. 7525.

Family Campers: Sun., April 5, 5 p.m., Plant 18. Bus. meeting, last before camping season. Phil Giacini, Ext. 57247.

Fencing Club: Wednesdays & Fridays, 5 p.m., Plant 30 Cafeteria. Joe Campisi, Ext. 1134.

Flying Club: Fri., Apr. 3, 5 p.m., Plant 28 Audit. Reg. meeting. Carl Echols, Ext. 6101.

Horseback Riding Club: Friday, April 3, 5:30-9:30 p.m., Club Outragous, Central Park Rd., Plainview. Party. Joseph Manfre, Ext. 3926.

L.I. Indus. Nurses Assoc.: Thurs., April 9, 5-10 p.m., Hillside Rest., Plainview. Buffet supper. Dr. David Marshall, corp. med. dir., Sanders Assocs., on "Computers." Mary Gise, Ext. 3723.

Ski Club: Wed., April 1. Reg. meeting. Bill Brennan, Ext. 3451.

Soc. of Mfg. Engineers: Monday, April 13, 7:15 p.m., Plant 18. Plant tour, E. B. Welding Facility, members only, reserv. by April 3. Sid Hale, Ext. 84013.

Stamp Club (Bethpage): First 3 Wednesdays of month, 5 p.m., Plant 30 Cafeteria. Swap, circuit bk. sales, auctions. Harold Haug, Ext. 3473.

Stamp Club (Calverton): Wednesday, April 1, noon, Plant 6 Conf. Rm. Swap., dr. prize & philatelic subj. Floyd Franklin, Ext. 57384.

Toastmasters Club: Wednesdays, 6 p.m., Town & Country Diner, Syosset. Pub. speak. prac. Geo. Breen, Ext. 1651.

Disability benefits

Grumman insurance benefits have helped many a family when dad was laid up for some weeks. But do you know what happens if the disability lasts a year? Or two? Or more?

Long Term Disability income benefits take over where Short Term benefits (up to 26 weeks) leave off. More specifically, LTD starts paying when your disability lasts more than 180 consecutive days, the Grumman Group Insurance Office points out.

"Disability" includes accidents or illness sustained on or off the job.

To be eligible for LTD, the Grumman employee must be an active, full-time employee under 64½ years of age, with at least 90 days of employment behind him.

The income from Long Term Disability insurance, when added to any Workmen's Compensation, Social Security, other statutory disability, or Grumman Pension benefits, equals 50 per cent of your base pay. And these benefits continue for as long as you remain totally disabled—up to and including the first month following your 65th birthday.

Payments continue during the first two years of disability, provided you are unable to perform your regular or comparable duties at Grumman. After two years, payments would continue if you were unable to do any work for which you are, or could reasonably become, qualified.

For information on Grumman group insurance benefits, call Warren Bishop, Ext. 1506.